

Response to Office Action
Docket No. 020.0335.US.CON

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Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1. (currently amended): A system for collection and analysis of
2 patient information for automated remote patient care, comprising:
3 an implantable medical device for an individual patient regularly
4 recording and storing measures sets comprising individual measures which each
5 relate to patient information;
6 a database collecting one or more patient care records, organizing one or
7 more patient care records which each comprise a plurality of the collected
8 measures sets, and storing the collected measures set into a patient care record for
9 the individual patient within a database; and
10 a server periodically receiving a set of the collected measures from the
11 implantable medical device over a communications link, and analyzing one or
12 more of the collected measures sets in the patient care record for the individual
13 patient relative to one or more other collected measures sets stored in the database
14 [[server]] to determine a patient status indicator.

1 2. (original): A system according to Claim 1, the server further
2 comprising:
3 a comparison module comparing an initial measure selected from the one
4 or more collected measures sets to a sibling measure selected from the one or
5 more other collected measures sets, the initial measure and the sibling measure
6 both relating to the same type of patient information.

1 3. (original): A system according to Claim 1, the server further
2 comprising:

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3 a derivation module determining an initial derived measure using at least
4 one measure selected from the one or more collected measures sets and
5 determining a sibling derived measure using at least one measure selected from
6 the one or more other collected measures sets, the initial derived measure and the
7 sibling derived measure both relating to the same type of derived patient
8 information; and
9 a comparison module comparing the initial derived measure to the sibling
10 derived measure.

1 4. (original): A system according to Claim 1, the server further
2 comprising:

3 a comparison module comparing an initial measure selected from the one
4 or more collected measures sets to a peer measure selected from the one or more
5 other collected measures sets, the initial measure relating to a different type of
6 patient information than the peer measure.

1 5. (original): A system according to Claim 1, the server further
2 comprising:

3 a derivation module determining a peer derived measure using at least one
4 measure selected from the one or more other collected measures sets; and
5 a comparison module comparing an initial measure selected from the one
6 or more collected measures sets to the peer derived measure, the initial measure
7 relating to a different type of patient information than the derived patient
8 information to which the peer derived measure relates.

1 6. (original): A system according to Claim 1, the server further
2 comprising:

3 a derivation module determining an initial derived measure using at least
4 one measure selected from the one or more collected measures sets; and
5 a comparison module comparing the initial derived measure to a peer
6 measure selected from the one or more other collected measures sets, the initial

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7 derived measure relating to a different type of derived patient information than the
8 patient information to which the peer measure relates.

1 7. (original): A system according to Claim 1, the server further
2 comprising:
3 a derivation module determining an initial derived measure using at least
4 one measure selected from the one or more collected measures sets and
5 determining a peer derived measure using at least one measure selected from the
6 one or more other collected measures sets; and
7 a comparison module comparing the initial derived measure to the peer
8 derived measure, the initial derived measure relating to a different type of derived
9 patient information than the derived patient information to which the peer derived
10 measure relates.

1 8. (original): A system according to Claim 1, wherein the one or more
2 other collected measures sets are stored in the patient care record for the
3 individual patient for whom the patient care indicator has been determined.

1 9. (original): A system according to Claim 1, wherein the one or more
2 other collected measures sets are stored in the patient care records for a group of
3 one or more other individual patients.

1 10. (currently amended): A system according to Claim 1, further
2 comprising:
3 a collection client communicatively interposed between the implantable
4 medical device and the communications link, the collection client retrieving the
5 collected measures set and downloading the collected measures set from the
6 collection client into the ~~network server~~ database over the communications link.

1 11. (original): A system according to Claim 10, wherein the collection
2 client is selected from the group consisting of a programmer, interrogator,

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3 recorder, monitor, telemetered signals transceiver, personal computer, digital data
4 processor, and combinations thereof.

1 12. (original): A system according to Claim 1, the server being
2 interfaced to a feedback communications link and further comprising:
3 a feedback client interfaced to the feedback communications link over
4 which automated feedback based on the patient status indicator is provided to the
5 individual patient from the server.

1 13. (original): A system according to Claim 12, the server further
2 comprising:
3 a feedback module providing tiered feedback comprising:
4 at a first level of feedback, communicating an interpretation of the
5 patient status indicator to the individual patient;
6 at a second level of feedback, communicating a notification of
7 potential medical concern based on the patient status indicator to the individual
8 patient;
9 at a third level of feedback, communicating a notification of
10 potential medical concern based on the patient status indicator to medical
11 personnel in local proximity to the individual patient; and
12 at a fourth level of feedback, communicating a set of
13 reprogramming instructions based on the patient status indicator to the
14 implantable medical device.

1 14. (original): A system according to Claim 12, wherein the automated
2 feedback comprises at least one of the group consisting of a peer group status
3 indicator, a historical status indicator, a trend indicator, a medicinal efficacy
4 indicator, and a wellness indicator.

1 15. (original): A system according to Claim 12, wherein the feedback
2 communications link comprises at least one of the following: internetwork link,
3 intranetwork link, serial link, data telephone link, satellite link, radio-frequency

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4 link, infrared link, fiber optic link, coaxial cable link, television link, and
5 combinations thereof.

1 16. (original): A system according to Claim 12, wherein the feedback
2 client is selected from the group consisting of a personal computer, facsimile
3 machine, telephone instrument, network computer, wireless computer, personal
4 data assistant, television, digital data processor, and combinations thereof.

1 17. (original): A system according to Claim 1, the server further
2 comprising:
3 an analysis module dynamically analyzing the one or more of the collected
4 measures sets in the patient care record for the individual patient.

1 18. (original): A system according to Claim 1, the server further
2 comprising:
3 an analysis module analyzing the one or more of the collected measures
4 sets in the patient care record for the individual patient in a batch comprising the
5 one or more of the collected measures sets in patient care records for a plurality of
6 individual patients.

1 19. (original): A system according to Claim 1, wherein the
2 communications link comprises at least one of the following: internetwork link,
3 intranetwork link, serial link, data telephone link, satellite link, radio-frequency
4 link, infrared link, fiber optic link, coaxial cable link, television link, and
5 combinations thereof.

1 20. (original): A system according to Claim 1, wherein the database
2 comprises at least one of the following: volatile storage, non-volatile storage,
3 removable storage, fixed storage, random access storage, sequential access
4 storage, permanent storage, erasable storage, and combinations thereof.

1 21. (currently amended): A system according to Claim 1, wherein the
2 organization of the database comprises at least one of the following: flat file,

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3 hierarchical ~~database server~~, database, relational ~~database server~~, database,
4 distributed ~~database server~~, database, and combinations thereof.

1 22. (original): A system according to Claim 1, wherein the server is
2 selected from the group consisting of a personal computer, minicomputer,
3 mainframe computer, supercomputer, parallel computer, workstation, digital data
4 processor, and combinations thereof.

1 23. (original): A system according to Claim 1, wherein the medical
2 device is selected from the group consisting of a pacemaker, implantable
3 cardioverter defibrillator, implantable heart failure monitor, implantable event
4 monitor, implantable cardiopulmonary monitor, implantable metabolic monitor or
5 device, endocrinology monitor or device, hematology monitor or device,
6 implantable neuromuscular monitor or device, implantable gastrointestinal
7 monitor or device, genitourinary monitor or device, and combinations thereof.

1 24. (original): A system according to Claim 1, wherein the set of
2 collected measures comprises at least one of the following: atrial electrical
3 activity, ventricular electrical activity, time of day, activity level, cardiac output,
4 oxygen level, cardiovascular pressure measures, pulmonary measures,
5 interventions made, and combinations thereof.

1 25. (original): A system according to Claim 24, the set of collected
2 measures further comprising derived measures selected from the group consisting
3 of linear measures derived from the set of collected measures, non-linear
4 measures derived from the set of collected measures, and combinations thereof.

1 26. (currently amended): A method for collection and analysis of
2 patient information for automated remote patient care, comprising:
3 regularly recording and storing measures sets comprising individual
4 measures which each relate to patient information using an implantable medical
5 device for an individual patient;

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6 periodically receiving a set of the collected measures from the implantable
7 medical device over a communications link;
8 collecting one or more patient care records into a database, comprising:
9 organizing one or more patient care records which each comprise a
10 plurality of the collected measures sets;
11 storing the collected measures set into a patient care record for the
12 individual patient within the database; and
13 analyzing one or more of the collected measures sets in the patient care
14 record for the individual patient relative to one or more other collected measures
15 sets stored in the database to determine a patient status indicator.

1 27. (original): A method according to Claim 26, the operation of
2 analyzing the one or more collected measures sets further comprising:
3 comparing an initial measure selected from the one or more collected
4 measures sets to a sibling measure selected from the one or more other collected
5 measures sets, the initial measure and the sibling measure both relating to the
6 same type of patient information.

1 28. (original): A method according to Claim 26, the operation of
2 analyzing the one or more collected measures sets further comprising:
3 determining an initial derived measure using at least one measure selected
4 from the one or more collected measures sets;
5 determining a sibling derived measure using at least one measure selected
6 from the one or more other collected measures sets, the initial derived measure
7 and the sibling derived measure both relating to the same type of derived patient
8 information; and
9 comparing the initial derived measure to the sibling derived measure.

1 29. (original): A method according to Claim 26, the operation of
2 analyzing the one or more collected measures sets further comprising:

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3 comparing an initial measure selected from the one or more collected
4 measures sets to a peer measure selected from the one or more other collected
5 measures sets, the initial measure relating to a different type of patient
6 information than the peer measure.

1 30. (original): A method according to Claim 26, the operation of
2 analyzing the one or more collected measures sets further comprising:
3 determining a peer derived measure using at least one measure selected
4 from the one or more other collected measures sets; and
5 comparing an initial measure selected from the one or more collected
6 measures sets to the peer derived measure, the initial measure relating to a
7 different type of patient information than the derived patient information to which
8 the peer derived measure relates.

1 31. (original): A method according to Claim 26, the operation of
2 analyzing the one or more collected measures sets further comprising:
3 determining an initial derived measure using at least one measure selected
4 from the one or more collected measures sets; and
5 comparing the initial derived measure to a peer measure selected from the
6 one or more other collected measures sets, the initial derived measure relating to a
7 different type of derived patient information than the patient information to which
8 the peer measure relates.

1 32. (original): A method according to Claim 26, the operation of
2 analyzing the one or more collected measures sets further comprising:
3 determining an initial derived measure using at least one measure selected
4 from the one or more collected measures sets;
5 determining a peer derived measure using at least one measure selected
6 from the one or more other collected measures sets; and

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7 comparing the initial derived measure to the peer derived measure, the
8 initial derived measure relating to a different type of derived patient information
9 than the derived patient information to which the peer derived measure relates.

1 33. (original): A method according to Claim 26, wherein the one or
2 more other collected measures sets are stored in the patient care record for the
3 individual patient for whom the patient care indicator has been determined.

1 34. (original): A method according to Claim 26, wherein the one or
2 more other collected measures sets are stored in the patient care records for a
3 group of one or more other individual patients.

1 35. (currently amended): A method according to Claim 26, further
2 comprising:

3 retrieving the collected measures set into a collection client
4 communicatively interposed between the implantable medical device and a
5 ~~network server;~~ the communications link; and

6 downloading the collected measures set from the collection client into the
7 ~~network server.~~ database over the communications link.

1 36. (original): A method according to Claim 35, wherein the collection
2 client is selected from the group consisting of a programmer, interrogator,
3 recorder, monitor, telemetered signals transceiver, personal computer, digital data
4 processor, and combinations thereof.

1 37. (currently amended): A method according to Claim 26, further
2 comprising:

3 interfacing the server to a feedback communications link; and

4 providing automated feedback based on the patient status indicator to the
5 individual patient ~~configured between a network server and a~~ from the server over
6 the feedback client communications link.

1 38. (original): A method according to Claim 37, further comprising:

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2 providing tiered feedback comprising:
3 at a first level of feedback, communicating an interpretation of the
4 patient status indicator to the individual patient;
5 at a second level of feedback, communicating a notification of
6 potential medical concern based on the patient status indicator to the individual
7 patient;
8 at a third level of feedback, communicating a notification of
9 potential medical concern based on the patient status indicator to medical
10 personnel in local proximity to the individual patient; and
11 at a fourth level of feedback, communicating a set of
12 reprogramming instructions based on the patient status indicator to the
13 implantable medical device.

1 39. (original): A method according to Claim 37, wherein the
2 automated feedback comprises at least one of the group consisting of a peer group
3 status indicator, a historical status indicator, a trend indicator, a medicinal efficacy
4 indicator, and a wellness indicator.

1 40. (original): A method according to Claim 37, wherein a feedback
2 communications link comprises at least one of the following: internetwork link,
3 intranetwork link, serial link, data telephone link, satellite link, radio-frequency
4 link, infrared link, fiber optic link, coaxial cable link, television link, and
5 combinations thereof.

1 41. (original): A method according to Claim 37, wherein the feedback
2 client is selected from the group consisting of a personal computer, facsimile
3 machine, telephone instrument, network computer, wireless computer, personal
4 data assistant, television, digital data processor, and combinations thereof.

1 42. (original): A method according to Claim 26, further comprising:
2 dynamically analyzing the one or more of the collected measures sets in
3 the patient care record for the individual patient.

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1 43. (original): A method according to Claim 26, further comprising:
2 analyzing the one or more of the collected measures sets in the patient care
3 record for the individual patient in a batch comprising the one or more of the
4 collected measures sets in patient care records for a plurality of individual
5 patients.

1 44. (original): A method according to Claim 26, wherein a
2 communications link comprises at least one of the following: internetwork link,
3 intranetwork link, serial link, data telephone link, satellite link, radio-frequency
4 link, infrared link, fiber optic link, coaxial cable link, television link, and
5 combinations thereof.

1 45. (original): A method according to Claim 26, wherein the database
2 comprises at least one of the following: volatile storage, non-volatile storage,
3 removable storage, fixed storage, random access storage, sequential access
4 storage, permanent storage, erasable storage, and combinations thereof.

1 46. (currently amended): A method according to Claim 45, wherein an
2 organization of the database comprises at least one of the following: flat file,
3 hierarchical ~~database server~~, database, relational ~~database server~~, database,
4 distributed ~~database server~~, database, and combinations thereof.

1 47. (original): A method according to Claim 26, wherein a server is
2 selected from the group consisting of a personal computer, minicomputer,
3 mainframe computer, supercomputer, parallel computer, workstation, digital data
4 processor, and combinations thereof.

1 48. (original): A method according to Claim 26, wherein the medical
2 device is selected from the group consisting of a pacemaker, implantable
3 cardioverter defibrillator, implantable heart failure monitor, implantable event
4 monitor, implantable cardiopulmonary monitor, implantable metabolic monitor or
5 device, endocrinology monitor or device, hematological monitor or device,

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6 implantable neuromuscular monitor or device, implantable gastrointestinal
7 monitor or device, genitourinary monitor or device, and combinations thereof.

1 49. (original): A method according to Claim 26, wherein the set of
2 collected measures comprises at least one of the following: atrial electrical
3 activity, ventricular electrical activity, time of day, activity level, cardiac output,
4 oxygen level, cardiovascular pressure measures, pulmonary measures,
5 interventions made, and combinations thereof.

1 50. (original): A method according to Claim 49, the set of collected
2 measures further comprising derived measures selected from the group consisting
3 of linear measures derived from the set of collected measures, non-linear
4 measures derived from the set of collected measures, and combinations thereof.

1 Claims 51-82 (withdrawn).